

REMARKS

Claims 1-3 and 5-14, 19, 20 and 22-29 are now in the application. Claim 1 has been amended to recite “a natural rubber (NR) composition” in place “a polymer composition”. Accordingly, claims 2-6 have been amended to recite “NR” in place of “polymer” for consistency with the amendment to claim 1. Claims 1, 8 and 23 have been amended to recite “in the absence of a coagulant”. Basis for this amendment to claims 1, 8 and 23 can be found in the first full paragraph on page 5, beginning at line 12 of the specification and Comparative Example 1 on page 15 of the specification. Claims 19 and 25 have been amended to recite “before drying” and to recite “mPa·s” in place of “mP·s” for purposes of clarification and to limit their scope. The recitation “before drying” to claims 19 and 25 finds basis, for example, at page 14, lines 31-35 and page 10, lines 25-29, respectively. The amendments to the claims do not introduce any new matter.

Claims 1-3, 8-13, 19 and 23-26 are drawn to the elected invention. Claims 7, 14, 22 and 27-29 are drawn to non-elected invention and may be cancelled by the Examiner upon the allowance of the claims directed to the elected invention.

The objection of claim 19 has been addressed by the amendment to claim 19 to recite “mPa·s”. Also, the rejection of claim 19 under 35 USC 112, second paragraph has been overcome by the amendment to claim 19 reciting “before drying”.

Claims 1-3 and 5 were rejected under 35 USC 103(a) as being unpatentable over US Patent 4,065,426 to Yamawaki et al. (hereinafter also referred to as “Yamawaki”) in view of JP 11-292978 A and US Patent 6,727,323 to Weiler. Claim 19 was also rejected under 35 USC 103(a) as being unpatentable over US Patent 4,065,426 to Yamawaki et al. in view of JP 11-292978 A and US Patent 6,727,323 to Weiler. The cited art fails to render obvious claims 1-3, 5 and 19.

As is clear from the disclosure of the present application and as recited in claim 1, as amended, important aspects of the present invention reside in producing a NR composition, containing (i) NR and (ii) a specified filler (i.e., carbon black, silica, waterglass, colloidal

silica, clay and calcium carbonate) by simultaneously drying, in the absence of a coagulant, by means of a shock wave generated from pulse combustion (i.e., sometimes "a pulse drying" hereinbelow), whereby the production of NR from latex thereof containing the specified filler can be greatly improved, without causing the serious heat degradation or gelling of NR, unlike the prior art. This is completely absent in the cited references.

Yamawaki suggests the production of rubber crumbs with non-tackiness or antiblocking property by treating the crumbs with a mixture of a rubber latex and an aqueous carbon black slurry in the presence of a coagulant.

However, Yamawaki differs significantly from the present invention in the points that (i) the drying of NR by means of a shock wave generated from pulse combustion according to the present invention and (ii) the use of a coagulant is essential according to Yamawaki; whereas, the use of a coagulant should be avoided in the present invention. The use of a coagulant requires an undesirable wastewater treatment for the water containing the coagulant. Although, according to the Office Action, Yamawaki discloses the use of the water-soluble polymeric material, the water-soluble polymeric material is used, in combination with a coagulant. This is contrary to the present invention.

JP 11-292978 A does not overcome the above discussed deficiencies of Yamawaki with respect to rendering unpatentable the present invention. JP 11-292978 A suggests drying an aqueous synthetic resin emulsion including SBR by a pulse shock wave dryer. However, JP 11-292978 A does not teach the drying of a NR latex with the specified filler by means of a shock wave (or "pulse drying"), without using a coagulant.

Weiler does not overcome the above discussed deficiencies of Yamawaki and JP 11-292978 A with respect to rendering unpatentable the present invention. Weiler suggests the viscosity of the atomizing feed at col. 6, lines 34 - 38. However, Weiler neither discloses nor teaches the drying of the NR composition, together with the specified filler by means of a shock wave (or a pulse drying).

Claim 6 was rejected under 35 USC 103(a) as being unpatentable over US Patent 4,065,426 to Yamawaki et al. in view of JP 11-292978 A and US Patent 6,727,323 to Weiler in view of US Patent 5,842,289 to Chandran et al. (hereinafter also referred to as “Chandran”).

Chandran does not overcome the above discussed deficiencies of Yamawaki, JP 11-292978 A and Weler with respect to rendering unpatentable the present invention. Chandran was relied upon for a disclosure of a frequency of pulse combustion in the range of 50 to about 500 Hz. Chandran suggests a pulsating apparatus comprising a pulse combustion device. However, again, there is no mention, therein, of the production of a NR composition containing (i) NR and (ii) a specified filler (i.e., carbon black, silica, water- glass, colloidal silica, clay and calcium carbonate) by a simultaneous pulse drying, whereby the work or heat efficiency of the production of the specified rubber from the latex thereof containing the specified filler can be greatly improved, without causing the serious heat degradation or gelling of NR.

Accordingly, claim 6 is patentable for at least those reasons as to why claim 1 is patentable.

Claims 8-10 and 13 were rejected under 35 USC 103(a) as being unpatentable over US Patent 4,065,426 to Yamawaki et al. in view of JP 11-292978 A and US Patent 3,945,978 to Berg et al. (hereinafter also referred to as “Berg”). Claims 23 and 24 were also rejected under 35 USC 103(a) as being unpatentable over US Patent 4,065,426 to Yamawaki et al. in view of JP 11-292978 A and US Patent 3,945,978 to Berg et al. The above discussion of Yamawaki and JP 11-292978 A is incorporated herein by reference. Berg does not overcome the above discussed deficiencies of Yamawaki and JP 11-292978 A with respect to rendering unpatentable the present invention.

Berg et al. was relied upon for a disclosure of the amount of surfactant. Also, with respect to claims 23 and 24, the examiner observed that Yamawaki et al. do not disclose two starting feed lines which are combined into a single line. The examiner relied upon Berg et al for a disclosure of this feature. Also, the examiner stated that Yamawaki et al. do not disclose the time after mixing the rubber mixture and then drying. The examiner relied upon Berg et al for a disclosure of this feature.

Berg suggests the production of pourable, powdering filler-containing elastomer particles. However, again, Berg neither discloses nor teaches the production of a NR composition, containing (i) NR and (ii) a specified filler (i.e., carbon black, silica, water-glass, colloidal. silica, clay and calcium carbonate) by simultaneously drying, in the absence of a coagulant, by means of a shock wave generated from pulse combustion.

Claim 11 was rejected under 35 USC 103(a) as being unpatentable over US Patent 4,065,426 to Yamawaki et al. in view of JP 11-292978 A and US Patent 3,945,978 to Berg et al. and US Patent 6,727,323 to Weiler. Claim 25 was also rejected under 35 USC 103(a) as being unpatentable over US Patent 4,065,426 to Yamawaki et al. in view of JP 11-292978 A, US Patent 3,945,978 to Berg et al. and US Patent 6,727,323 to Weiler.

Weiler does not overcome the above discussed deficiencies of Yamawaki, JP 11-292978 A and Berg with respect to rendering unpatentable the present invention.

Weiler suggests the viscosity of the atomizing feed at col. 6, lines 34 - 38. However, Weiler neither discloses nor teaches the drying of the NR composition, together with the specified filler by means of a shock wave (or a pulse drying). Accordingly, claims 11 and 25 are patentable for at least those reasons as to why claims 8 and 23, respectively are patentable.

Claim 12 was rejected under 35 USC 103(a) as being unpatentable over US Patent 4,065,426 to Yamawaki et al. in view of JP 11-292978 A and US Patent 3,945,978 to Berg et al. and US Patent 5,842,289 to Chandran et al. Claim 26 was also rejected under 35 USC 103(a) as being unpatentable over US Patent 4,065,426 to Yamawaki et al. in view of JP 11-292978 A, US Patent 3,945,978 to Berg et al. and US Patent 5,842,289 to Chandran et al. Chandran does not overcome the above discussed deficiencies of Yamawaki, JP 11-292978 A and Berg with respect to rendering unpatentable the present invention.

As mentioned above, Chandran was relied upon for a disclosure of a frequency of pulse combustion in the range of 50 to about 500 Hz. Chandran suggests a pulsating apparatus comprising a pulse combustion device. However, again, there is no mention, therein, of the production of a NR composition containing (i) NR and (ii) a specified filler (i.e., carbon black,

silica, water- glass, colloidal silica, clay and calcium carbonate) by a simultaneous pulse drying, whereby the work or heat efficiency of the production of the specified rubber from the latex thereof containing the specified filler can be greatly improved, without causing the serious heat degradation or gelling of NR.

Accordingly, claims 12 and 26 are patentable for at least those reasons as to why claims 8 and 23, respectively are patentable.

The cited art lacks the necessary direction or incentive to those of ordinary skill in the art to render under 35 USC 103 sustainable. The cited art fails to provide the degree of predictability of success of achieving the properties attainable by the present invention needed to sustain a rejection under 35 USC 103. See *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007), *Diversitech Corp. v. Century Steps, Inc.* 7 USPQ2d 1315 (Fed. Cir. 1988), *In re Mercier*, 187 USPQ 774 (CCPA 1975) and *In re Naylor*, 152 USPQ 106 (CCPA 1966).

Moreover, the properties of the subject matter and improvements which are inherent in the claimed subject matter and disclosed in the specification are to be considered when evaluating the question of obviousness under 35 USC 103. See *KSR Int'l Co. v. Teleflex, Inc.*, 127 S. Ct. 1727 (2007), *Gillette Co. v. S.C. Johnson & Son, Inc.*, 16 USPQ2d. 1923 (Fed. Cir. 1990), *In re Antonie*, 195, USPQ 6 (CCPA 1977), *In re Estes*, 164 USPQ 519 (CCPA 1970), and *In re Papesch*, 137 USPQ 43 (CCPA 1963).

No property can be ignored in determining patentability and comparing the claimed invention to the cited art. Along these lines, see *In re Papesch*, supra, *In re Burt et al.*, 148 USPQ 548 (CCPA 1966), *In re Ward*, 141 USPQ 227 (CCPA 1964), and *In re Cescon*, 177 USPQ 264 (CCPA 1973).

The present invention could only be derived from the cited art by the use of improper "hindsight", i.e. by knowing what Applicants' invention was in advance from Applicants' disclosure, and then *ex post facto* reconstructing Applicants' invention from the prior art after a

thorough search. It is impermissible under 35 U.S.C. 103 to use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. See *In re Fine*, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988). Furthermore, it is well settled that hindsight reconstruction using the patent application as a guide through the maze of prior art references, combining "the right references in the right way" so as to achieve the result of the claimed invention must be avoided. See *Grain Processing Corp. v. American Maize-Products Corp.*, 5 U.S.P.Q.2d 1788 (Fed. Cir. 1988).

In view of the above amendment, applicant believes that the pending application is in condition for allowance.

In the event the Examiner believes an interview might serve in any way to advance the prosecution of this application, the undersigned is available at the telephone number noted below.

The Office is authorized to charge any necessary fees to Deposit Account No. 22-0185, under Order No. 21713-00031-US1 from which the undersigned is authorized to draw.

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Respectfully submitted,

Electronic signature: /Burton A. Amernick/
Burton A. Amernick
Registration No.: 24,852
CONNOLLY BOVE LODGE & HUTZ LLP
1875 Eye Street, NW
Suite 1100
Washington, DC 20006
(202) 331-7111
(202) 293-6229 (Fax)
Attorney for Assignee